

Application No: 10/779,454
Amendment dated August 16, 2006
Reply to Office Action Dated June 15, 2006

Attorney Docket No: 3926.063

IN THE CLAIMS:

The following listing of claims replaces any earlier listing:

1. (currently amended) A door space monitoring device for monitoring a door swing area of a vehicle door, comprising:
with sensor means for sensing in the door swing area of the vehicle door,
with a sensor-data evaluating evaluation unit, and
with a control unit for controlling the sensor means ~~or evaluation unit~~,
~~where the~~ wherein a monitoring area sensed by the sensor means is substantially two-dimensional, ~~that~~ and wherein the sensor means includes at least one light source for emission of a ~~pivotal~~ light beam, at least one micro-mirror-unit for pivoting the light beam and at least one photo-detector for monitoring the two-dimensional monitoring area.
2. (currently amended) The door space monitoring device according to Claim 1, wherein the micro-mirror-unit ~~with it's~~ has at least one micro-mechanical pivotable planar mirror is associated with an additional non-planar mirror.
3. (currently amended) The door space monitoring device according to Claim ~~[[1]]~~ 2, wherein the additional non-planar mirror is shaped such that its contour corresponds to the contour of the vehicle door.
4. (currently amended) The door space monitoring device according to Claim 2, wherein the additional non-planar mirror is mounted to be pivotable and is ~~preferably~~ micro-mechanically driven.
5. (currently amended) The door space monitoring device according to Claim 1 in combination with a vehicle door, wherein the light source ~~for emission of a pivotal light beam~~, the micro-mirror-unit and the photo-detector ~~for detecting the two~~

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~~dimensional monitoring area~~ are provided on or in an external mirror which is attached to the vehicle door, or provided on or in a vehicle door handle.

6. (currently amended) The door space monitoring device according to Claim 1 in combination with a vehicle door, wherein the light source ~~for emission of a pivotable light beam~~, the micro-mirror-unit and the photo-detector ~~for detecting the two-dimensional monitoring area~~ are provided in the an area of the a pivot axis of the vehicle door.
7. (currently amended) The door space monitoring device according to Claim 1, wherein the light source ~~for emission of a pivotable light beam~~, the micro-mirror-unit and the photo-detector ~~for detecting the two-dimensional monitoring area~~ are provided in a common housing.
8. (currently amended) The door space monitoring device according to Claim 7, wherein within the housing the micro-mirror-unit is provided between the light source ~~for emitting a pivotable light beam~~ and the photo-detector, and that off-set to the side thereto, at least one of the control unit and/or and the evaluation unit are is provided preferably upon a common circuit board.
9. (currently amended) The door space monitoring device according to Claim 1, wherein the at least one photo-detector is a PIN-diode.
10. (currently amended) The door space monitoring device according to Claim 1, wherein ~~the control unit is so designed, that the~~ light output of the light source controlled by the control unit is adjusted according to the degree of pivoting of ~~the~~ at least one micro-mechanical mirror of the micro-mirror-unit.
11. (currently amended) The door space monitoring device according to Claim ~~[[1]]~~ 2, wherein ~~the control unit is so designed, that the~~ during a pivot process, pivoting of the at

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least one micro-mechanical mirror of the micro-mirror-unit is controlled by the control unit to pivot at regular intervals over a predetermined pivot range to produce a light beam passing through the two-dimensional monitoring area.

12. (currently amended) The door space monitoring device according to Claim 11, wherein ~~the control unit is so designed, that a~~ the pivoting over ~~[[a]]~~ the predetermined pivot range occurs within a time span TS of less than 5 ms.
13. (currently amended) The door space monitoring device according to Claim 12, wherein ~~the control unit is so designed, that~~ between two pivot processes a time span TP of greater than 25 ms and preferably less than 50 ms occurs.
14. (currently amended) The door space monitoring device according to Claim 12, wherein the control unit is so designed, that the light source and preferably also the photo-detector are activated essentially only during the pivot process, preferably only during each ~~n-th~~ n-th pivot process with n being less than 10.
15. (currently amended) The door space monitoring device according to Claim 1 in combination with a vehicle door, wherein the light source ~~for emitting a pivotable light beam~~, the micro-mirror-unit and the photo-detector ~~for detecting the two-dimensional monitoring area~~ are so arranged, that the distance of the two dimensional monitoring area from the vehicle door essentially also increases with increasing distance of the two dimensional monitoring area from the pivot axis of the vehicle door.
16. (currently amended) The door space monitoring device according to Claim 1, wherein the light source ~~for emitting a pivotable light beam~~, the micro-mirror-unit and the photo-detector ~~for detecting the two-dimensional monitoring area~~ are provided in a common housing together with the evaluation unit for distance measurement by ~~means of~~ a phase delay process.

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17. (currently amended) The door space monitoring device according to Claim 16, wherein the evaluation unit is adapted to carry out on the basis of reference values, preferably a lookup table stored in a memory, corresponding to the a shape or design of the vehicle door, an evaluation of relevance for potential detected obstacles.
18. (previously presented) The door space monitoring device according to Claim 1, wherein dependent upon the detection of an obstacle in the door swing area a warning signal is emitted, a further automatic opening of the vehicle door is interrupted, or a further opening of the vehicle door is actively prevented.